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ABSTRACT

NOR CAL, the Northern California Research and Development Group composed of 28 California community colleges, aims at identifying prcblems in community colleges and alternatives for solving them. This paper is a review of the NOR CAL Attrition Project, a 3-year study of potential drop-outs in California community colleges. The purpose of the project was to develop a predictive instrument to identify potential drop-outs. Phase I of the study focused on student background characteristics as factors that predetermine attrition. During the second phase, the NOR CAL questionnaire was validated. During phase III (this year), NOR CAL representatives are attempting to utilize existing curricular and counseling programs to counteract the deficiencies of potential drop-outs. The study reveals that the low-ability, black male who has low educational goals, little parental encouragement, and a low sense of the importance of college is the one most likely to drop out. Questions arising subsequent to this study are mentioned in the NOR CAL questionnaire is included. (RC)

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NOR CAL - AN IMPRESSIVE ACHIEVEMENT

A REVIEW

by Donald L. Kester

If any one organization can be said to be the "father" of Nor Cal, that organization is the California Junior College Association; for it was CJCA that sponsored a 1966 summer workshop in research and development for representatives from California Community Colleges. It was this CJCA sponsored workshop that gave impetus to the creation of a viable research and development consortium of California Community Colleges -- a consortium that would attract statewide and national attention and praise for its subsequent conduct of meaningful research and development in the community college. How this small group of institutional researchers created and sustained this consortium is a story in itself. This story will soon be published so that those interested in developing other consortia will have ready access to the Nor Cal model. Since this story will be told, suffice it to say here that Nor Cal must acknowledge its paternity to CJCA. Nor Cal must acknowledge its debt to CJCA for the initial impetus toward action oriented research and development aimed at identifying problems in the community college and working through research and development to see what alternative forms of action best solve these problems. The historic foundations of Nor Cal extend back through its father organization, CJCA, to men like Tom Merson of Bakersfield and Bob DeHart, now of De Anza. This brief presentation of the status of the Nor Cal Attrition Project would be very incomplete if it were not emphasized that CJCA "fathered" Nor Cal.

What is Nor Cal? This question has been asked many times, especially since the appearance in the May 1970 issue of the Junior College Journal of Tom MacMillan's article entitled, "Nor Cal - The Key is Cooperation". Since the publication of Tom's article, the term Nor Cal has come to have two meanings. First, Nor Cal has come to be identified with the Northern California research and development group or consortium. Second, Nor Cal has come to be associated with a three-year study of attrition in California Community Colleges.

The first thing a person notices about the consortium is that it is big. There are 28 California Community Colleges that are in the Nor Cal consortium, or presently attached to it. This means that about 1 out of every 4 California Community Colleges are involved in Nor Cal. Twenty-eight community colleges may not sound like a lot to Californians, but let's put this in national perspective. Fact number 1: out of the 50 states that comprise America, there are only 9 that have more community colleges than Nor Cal has. These 9 states are: California (96), North Carolina (50), Illinois (43), New York and Texas (42 each), Michigan and Pennsylvania (32 each), and Ohio (30). We in California are so used to nonchalantly thinking of our state as number one in the nation in terms of number of community colleges, and number one in the nation in terms of number of students enrolled in community colleges that we are apt to overlook the fact that Nor Cal is enormous. In this light, it is astonishing that a voluntary organization like Nor Cal is able to bind so many colleges together under the roof of improving our operations through the rational inquiry methods of research and development. It is immediately clear that the success of such a massive study as the Nor Cal Attrition Project is possible only because of the tremendous support given by the Nor Cal

JC 700 256

Speech presented at the California Junior College Association Annual Convention, San Diego, California, 1970

representatives who work in their local colleges. It is for this reason that you may want to know who these people are and where they are:

Lorine Aughinbaugh	American River College
Robert Chamberlin	Barstow Junior College
John Hinton	Cabrillo Junior College
Dave Guzman	Chabot Junior College
Phyllis Goldman	Contra Costa Junior College
Dave Shaw	De Anza Junior College
Bill Preston	Diablo Valley Junior College
Irel Lowe	Fotthill Junior College
O. R. Wheeler	Fullerton Junior College
Charles Locks	Los Angeles Valley College
Loren Irwin	Merced Junior College
Don Denevi	Merrit Junior College
Virginia Murdoff	Napa Junior College
Clay Bell	Ohlone Junior College
Esther Bradley	Porterville Junior College
Bob Clark	Reedley Junior College
Elbert Kennebrew	Sacramento City College
Lance Rodgers	San Francisco City College
Jim Keene	San Joaquin Delta College
Paul Preising	San Jose City College
Bill Wenrich	The College of San Mateo
Tom MacMillan	Santa Barbara City College
Dick Jacobsen	The College of the Sequoias
Walt Brooks	Shasta Junior College
Martin Taylor	Sierra Junior College
Martin Mini	Solano Junior College
Harry Price	Victor Valley Junior College
Elbert Miller	Yuba City Junior College

It is obvious that a consortium of this enormous size could not perform were it not for the dedicated support of these people at the local campus level. It is fitting then that the efforts of these people be recognized as the key ingredients making the Nor Cal Project the success that it is.

The fact has already been noted that the Nor Cal consortium is big -- bigger in fact than 41 of our 50 states in terms of the number of community colleges that are participating. The point should also be made that Nor Cal is big in another way. It is big in terms of the number of freshmen who are involved in the study. More than 25,000 entering California Community College freshmen have completed the Nor Cal questionnaire. In terms of California alone, this means that one out of every seven California Community College freshman is involved in this study. To put this in national perspective again, there are more community college freshmen in the Nor Cal study than there are in 45 of our 50 states. Only California, Florida, Illinois, New York and Texas have more community college freshmen in their states than Nor Cal has freshmen who are involved in this attrition study.

Let's take a closer look at the attrition study. Dorothy Knoell observes that, "Most studies of junior college students are description (normative), correlational (predictive), or evaluative (only occasionally experimental)." The three-year Nor Cal Attrition Study is all of these rolled into one; for Nor Cal was descriptive in Phase I, correlational-predictive in Phase II and is experimental in Phase III. During the first year of the study, that is in Phase I, the factors in the student's background which predetermine attrition were isolated. During the second year, a predictive instrument, that is the Nor Cal questionnaire, was validated. This year for Phase III, Nor Cal college representatives are engaged in utilizing curricular and/or counseling programs to offset deficiencies the potential drop-out has. All this is under the rubric of either a "true experimental", or a "quasi-experimental" design as defined by Campbell and Stanley in Gage's Handbook of Research on Teaching.

In her AAJC newsletter, Dorothy Knoell stated that "the college should be distressed by its students who live up to a prediction of failure, not elated by its selection of good predictive instruments." She further said that community colleges should use the results of their correlational-predictive studies as a "springboard for improving programs and services". The colleges should "develop special programs of assistance to improve academic skills and work habits which studies show to be highly related to success in college, and to place new students with a high probability of failure in such programs." One might well wonder if the Nor Call Attrition Study with its descriptive, predictive, and experimental phases was not borrowed directly from Dorothy Knoell. The answer is that the broad outlines for the three-year Nor Cal Attrition Study had been drawn and the first 25,000 questionnaires on entering freshmen had been collected by the time Dorothy Knoell's newsletter was published in November of 1968. The urgency of this kind of study was and still is a basic part of the community college's zeitgeist.

In essence then, what Nor Cal has been doing is watching the revolving door of the open door college and initialing trying to build a predictive instrument that would be able, as judged by the rigors of research, to identify students who were most likely to be "cooled down"; or to use Clark's term, "cooled out".

With the statistical data analysis that took place last spring, this summer, and this fall, it can now be stated affirmatively that the Nor Cal questionnaire does indeed identify these freshmen. Just as it is possible to draw a sketch of the average American, it now is possible to draw a sketch of the potential drop-out.

1. On the variable of sex-ability, the potential drop-out is most likely to be a low-ability male, least likely to be a middle-ability female.

2. On the variable of race, the potential drop-out is most likely to be black, least likely to be oriental.

3. On the variable of academic goals, the potential drop-out is most likely to have lower education goals than the persister.

4. On the variable of parental encouragement, the potential drop-out is most likely to receive little parental encouragement for his college plans; and finally,

5. On the variable of importance of college to self, the potential drop-out is most apt to have a low sense of the importance of college.

(These are the factors then, unless of course the student is an "Aquarius" or a "Leo" in terms of his Zodia sign -- No, I'm kidding here.)

Thus it is that the sketch reveals that the low-ability, black male who has low educational goals, little parental encouragement, and a low sense of the importance of college is the one most likely to drop out. It must further be said that such a sketch may become too simplified that it obscures certain other considerations. While the low-ability black males who answer the questionnaire items as just reviewed are the most likely to drop out, a middle ability white female by answering the questions related to educational goals, parental encouragement, and the importance of college to self in a certain way, may, herself, be in the "red flag", potential drop out category. It is clear then that the items which identify the potential drop-outs from the potential persisters is a combination of factors, as MacMillan has noted; factors, some of which are theoretically unchangeable, and some factors which are changeable. It, therefore, is the task of Nor Cal colleges to approach the potential drop-outs on the factors that can be changed and to work within this domain. It is this potential drop-out who receives the focus of attention this year in the final phase of the Nor Cal Attrition Project. In a very real sense, the potential drop-out that Nor Cal identifies is one of the new students in American higher education. Tiller's Scope data showed that in terms of traditional measures of academic aptitude, community colleges attract students from not only the top and middle thirds, but also the lower third. Leland Medsker, K. Patricia Cross, and Charles Collins state that there is no doubt that as American's move toward universal higher education, the new students will come in increasing numbers to the junior colleges from the lower socio-economic levels and lower aptitude levels.

One of the challenges of Phase III is, "Can the community colleges meet the needs of these new students?" In Knoell's terms, "Can community colleges successfully develop and carry out special programs of assistance for these new students?" If the answer for these questions is "No", then the ideal of universal higher education is called into question. Even the open door policy is called into question for if students who are "new" to higher education cannot be served, why should they be admitted?

All those involved in this study realize the gravity of this situation. Supra-agencies like the Coordinating Council for Higher Education and the California State Legislature are watching the Nor Cal Project with interest. CCHE and Nor Cal have cooperated in two studies and Alan Post has written about Nor Cal in his analysis of the Budget Bill.

Is universal higher education a possible goal for American society? Should the open door colleges begin to close their door partially and admit only those who can make it? While Nor Cal does not begin its study with these as paramount questions, these questions have

nevertheless arisen and attention will be paid to the results of this experimental phase.

In our society, education is seen as an escalator that runs from the lower socio-economic levels to the higher ones. Collins points out that there is within our society, a "revolution of rising expectations." Warren Bennis echoes this point of view with the term: "arribismo", which means the "unbridled desire to rise".

While recognizing these general corollary questions about universal higher education and the open door policy, Nor Cal college representatives seem to view this challenging opportunity with a clear sense of optimism. There is not one person in the entire consortium that has so much as hinted that he believes special programs at his college cannot reach these "red flag" students. In Phase III, each college is "doing its own thing" to try to reach these students -- for at the consortium level, the question is posed in socratic fashion; "Here is a list of your potential drop-outs. What special programs and special approaches do you and your staff want to try in your effort to help these kids?" One such effort is described in the handout. James Keene of San Joaquin Delta has prepared this description. What Jim is doing is typical of the good research designs being used in the Phase III.

In conclusion it should be noted that Nor Cal speaks also to the point of accountability in community college education for Nor Cal is a grass-roots phenomenon. Nor Cal proves by its very existence that community college educators can clean their own houses without the application of extreme pressure from supra-agencies above or vocal minorities below. In an age conscious that Ralph Nader can chop away at General Motors from below and also the Federal Government can chop away at General Motors from above, it is gratifying that perhaps extreme pressure from above and below will not be necessary to improve community college education.

Nor Cal began when a group of inspired community college educators decided that, "Yes", "there definitely are problem areas in community colleges; let's see what we can do through research and development to improve these situations." Thus, while Nor Cal investigates what special programs best help the new students to higher education, it also speaks to the questions of the open-door policy, universal higher education, and self-initiated accountability. The major challenge to Nor Cal is to see whether or not community colleges can respond to the needs of the new students in higher education. All of us feel that we can and should do this.

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Don Kester
Project Director

(HANDOUT)

NOR CAL - An Impressive Achievement

I. CJCA "Fathered" Nor Cal
   (a) A 1966 CJCA summer workshop in research and development gave impetus to the creation of Nor Cal.

II. What is Nor Cal?
   (a) The Northern California Cooperative Research Group or Consortium.
   (b) The three-year Nor Cal Attrition Project.

III. The Nor Cal Attrition Study
   (a) This study is enormous:
      (1) One out of four California Community Colleges is participating. Nor Cal includes more community colleges than 41 of our 50 states have.

      (2) These people are directing the project at their campus:

Lorine Aughinbaugh	American River College
*Robert Chamberlin	Barstow Junior College
John Hinton	Cabrillo Junior College
Dave Guzman	Chabot Junior College
Phyllis Goldman	Contra Costa Junior College
Dave Shaw	De Anza Junior College
Bill Preston	Diablo Valley Junior College
Irel Lowe	Foothill Junior College
*O. R. Wheeler	Fullerton Junior College
*Charles Locks	Los Angeles Valley College
Loren Irwin	Merced Junior College
Don Denevi	Merritt Junior College
Virginia Murdoff	Napa Junior College
Clay Bell	Ohlone Junior College
Esther Bradley	Porterville Junior College
Bob Clark	Reedley Junior College
Elbert Kennebrew	Sacramento City College
Lance Rodgers	San Francisco City College
Jim Keene	San Joaquin Delta College
Paul Preising	San Jose City College
Bill Wenrich	The College of San Mateo
Tom MacMillan	Santa Barbara City College
Dick Jacobsen	The College of the Sequoias
Walt Brooks	Shasta Junior College
Martin Taylor	Sierra Junior College
Martin Mini	Solano Junior College
*Harry Price	Victor Valley Junior College
Elbert Miller	Yuba City Junior College
*C. H. Palmer	El Centro College

*At-cost participants.

(3) One out of every seven California Community College freshman has completed the Nor Cal questionnaire. More community college freshmen are involved in Nor Cal than are included in 45 of our 50 states.

(b) The three phases of the Attrition Study:
- (1) Phase I - Descriptive
- (2) Phase II - Correlational-Predictive
- (3) Phase III - Experimental

(c) Nor Cal identifies those freshmen who are about to be "cooled out" via the "revolving door". They are students "new" to higher education.
- (1) On the variable of sex-ability, the potential drop-out is most likely to be a low-ability male, least likely to be a middle-ability female.
- (2) On the variable of race, the potential drop-out is most likely to be black, least likely to be oriental.
- (3) On the variable of academic goals, the potential drop-out is most likely to have lower education goals than the persister.
- (4) On the variable of parental encouragement, the potential drop-out is most likely to receive little parental encouragement for his college plans; and finally,
- (5) On the variable of importance of college to self, the potential drop-out is most apt to have a low sense of the importance of college.

(d) Implications of the Attrition Study:
- (1) Is universal higher education a possible national goal?
- (2) What of the "open door" policy?
- (3) In the coming age of accountability, can community college leaders "clean their own house" without pressure from above or below?

(e) Two basic research designs:
- (1) True experimental:

  R X O
  R O

- (2) Quasi-Experimental

  X O
  O

- (3) Example by Jim Keene of Delta College.

UNIVERSITY OF CALIF.
LOS ANGELES

DEC 04 1970

CLEARINGHOUSE FOR
JUNIOR COLLEGE
INFORMATION

Office of Institutional Research
San Joaquin Delta College

September 30, 1970

To: Max Barber, Dean of Students

From: James W. Keene JWK

Subject: Plan for NorCal Phase III

This memorandum will confirm the arrangements agreed upon between our offices for conduct of NorCal Phase III on this campus.

A computer print-out of the names of 341 first-time freshmen showing a high probability of becoming drop-outs by the NorCal model has been developed. Those students of the 341 who have already been enrolled in the College Readiness Program will be identified by your office and will constitute Group A (Experimental). The remaining students will be divided by your office into two approximately equal groups on a random basis. One of these groups, designated Group B (Experimental), will be subjected to an intensive counseling and guidance program developed as a special project by the counselors under your direction. The remaining group, designated Group C (Control) will be identified as such to <u>neither</u> the counselors <u>nor</u> the Readiness Center, but will be subject to the same press as if the experiment were not being conducted.

This office (Mrs. Hodge) will compare the Registrar's periodic reports of drop-outs with the print-out, noting the date each drop-out occurs. When the semester ends, this office will obtain from the Data Center a transcript print-out on each of the 341 students, make the necessary analyses, report the results to the NorCal Director, and, in cooperation with your office prepare a report for the President to present to the Board of Trustees.

If you will give this office a copy of the print-out with each student identified as a member of Group A, B, or C, we will have alphabetical print-outs run of each group for convenience in accounting.

NORCAL CO-OPERATIVE RESEARCH PROJECT

1. NAME _____ (LAST NAME) (FIRST NAME) (MIDDLE INITIAL)

COLLEGE USE - DO NOT MARK THIS AREA

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

TEST USED — ACT ____ SAT ____ CO-OP ____ SCAT ____ OTHER ____

COLLEGE CODE:

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

2. SOCIAL SECURITY NUMBER

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

3. WHAT IS YOUR RACE? — CAUCASIAN ____ | CAUCASIAN (SPANISH SURNAME) ____ | BLACK ____ | ORIENTAL ____ | OTHER ____

4. SEX — MALE ____ | FEMALE ____

5. WHAT IS YOUR MARITAL STATUS? — SINGLE ____ | MARRIED ____

6. IF EMPLOYED, WILL YOU KEEP YOUR JOB WHILE IN COLLEGE? — YES ____ | NO ____ | NOT EMPLOYED ____

7. IS YOUR JOB RELATED TO YOUR COLLEGE MAJOR? — YES ____ | NO ____ | NOT EMPLOYED ____

8. WILL YOU NEED FINANCIAL AID TO REMAIN IN COLLEGE? — YES ____ | NO ____

9. IN THE HOME WHERE YOU GREW UP, WHICH OF THE FOLLOWING BEST DESCRIBES THE JOB OF THE HEAD OF THE FAMILY?

- UNEMPLOYED ____
- UNSKILLED (NO FORMAL TRAINING) ____
- SEMI-SKILLED (SOME FORMAL TRAINING PREFERRED) ____
- SKILLED (SOME FORMAL TRAINING REQUIRED) ____
- MANAGERIAL (CONSIDERABLE TRAINING REQUIRED) ____
- PROFESSIONAL ____

10. DOES YOUR MOTHER HAVE A JOB OUTSIDE THE HOME? — YES, FULL TIME ____ | YES, PART TIME ____ | NO ____

11. HOW FAR AWAY FROM COLLEGE DO YOU LIVE? — 1-5 MILES ____ | 6-10 MILES ____ | 11-15 MILES ____ | 16-20 MILES ____ | OVER 20 MILES ____

12. HOW DO YOU GET TO THE CAMPUS? — OWN CAR ____ | CAR POOL ____ | PUBLIC TRANS. ____ | SCHOOL BUS ____ | OTHER ____

13. HOW LONG DOES IT TAKE YOU TO GET TO CAMPUS? — 10 MIN. OR LESS ____ | 10-30 MINUTES ____ | 30-45 MINUTES ____ | 45-90 MINUTES ____ | OVER 90 MINUTES ____

14. WHAT IS YOUR REASON FOR COMING TO COLLEGE? (MARK ONE CHOICE ONLY)

- ____ I HAVEN'T REALLY DECIDED YET
- ____ JUST TO TAKE INTERESTING COURSES
- ____ TO COMPLETE ONE OF THE TECHNICAL/VOCATIONAL COURSES
- ____ TO GET A JUNIOR COLLEGE DEGREE ONLY
- ____ TO GET A JUNIOR COLLEGE DEGREE AND COMPLETE A VOCATIONAL/TECHNICAL PROGRAM
- ____ TO PREPARE FOR TRANSFER TO ANOTHER INSTITUTION WITH OR WITHOUT AN A.A. DEGREE

15. SOMETIMES PEOPLE ARE UNABLE TO COMPLETE COLLEGE, EVEN THOUGH THEY PLAN TO. IF YOU ARE UNABLE TO FINISH WHAT DO YOU THINK WILL BE THE LIKELIEST OBSTACLE? — ACADEMIC ____ | FINANCIAL ____ | MARRIAGE ____ | MOTIVATION ____ | OTHER ____

16. WE SOMETIMES TURN TO OTHERS FOR ADVICE WHEN WE ARE MAKING PLANS. IF YOU WERE MAKING AN IMPORTANT DECISION NOW, HOW LIKELY IS IT THAT YOU WOULD TURN TO EACH OF THE FOLLOWING:

	NOT VERY LIKELY	MAYBE	LIKELY	VERY LIKELY		NOT VERY LIKELY	MAYBE	LIKELY	VERY LIKELY
NO ONE	____	____	____	____	COUNSELOR	____	____	____	____
FATHER	____	____	____	____	BROTHER/ SISTER	____	____	____	____
MOTHER	____	____	____	____	FRIENDS	____	____	____	____
TEACHER	____	____	____	____	OTHER	____	____	____	____

17. WHICH OF THE FOLLOWING PEOPLE WOULD YOU RELY ON MOST FOR ADVICE ABOUT SCHOOL OR JOB PLANS? — NO ONE ____ | FATHER ____ | MOTHER ____ | TEACHER ____ | COUNSELOR ____ | BROTHER/SISTER ____ | FRIENDS ____ | OTHER ____

18. HOW IMPORTANT IS IT TO THE FOLLOWING PEOPLE THAT YOU GO TO COLLEGE?

	NOT VERY IMPT.	SOMEWHAT IMPT.	QUITE IMPT.	EXTREMELY IMPT.
FATHER	____	____	____	____
MOTHER	____	____	____	____
OTHER	____	____	____	____

19. HOW IMPORTANT IS COLLEGE TO YOU PERSONALLY? — NOT VERY IMPT. ____ | SOMEWHAT IMPT. ____ | QUITE IMPT. ____ | EXTREMELY IMPT. ____

20. WHAT IS YOUR MAJOR? (USE THE LIST OF MAJOR CODES ON THE REVERSE SIDE OF THIS PAGE)

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

NORCAL CO-OPERATIVE RESEARCH PROJECT

INSTRUCTIONS

This questionnaire is being given to entering freshman students in 22 colleges throughout Northern California as a part of a cooperative research project which has been in progress for one year. The questions on the reverse side of this page should take no more than five or six minutes of your time. Please answer every question to the best of your knowledge. If you do not wish to answer a question, skip it and go on to the next one.

We appreciate your help. The results of this study will be used to develop new programs on your campus, and we hope to provide as much information to each college as possible from your responses.

Thank you for taking this extra few minutes of your time.

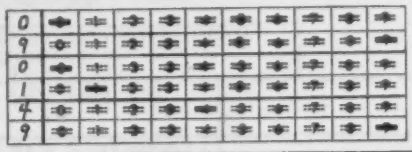
— — — — — — — — — DIRECTIONS FOR ANSWERING QUESTIONS — — — — — — — — —

Please make heavy marks to indicate your responses to the questions on the reverse side of this page. Read each question carefully, and make the appropriate response in each case: some questions may ask for more than one response.

For marking social security number and college major code, use the form illustrated below. List the numbers down the page, and then mark the spaces corresponding to the numbers. For example, if we were asking for your birth date, the response would be:

DATE OF BIRTH
Show month, day, year in numbers (Always precede unit numbers with zero, 01, 02, 03, etc.)

Example: Sept. 1, 1949 would be written as follows: 09 01 49 and marked as shown:



Please select your major from this list and enter the code number of your major in the appropriate blanks.
Majors listed represent Associate in Arts or Associate in Science Degree programs (terminal or transfer). In these areas the College offers a sufficient number of courses in the specific field to permit completion of the twenty-unit minimum degree requirement for the major.

If you are planning to transfer to a four-year college in any of the following-listed areas of study, your degree will be Associate in Arts with a major in Liberal Arts. Completion of (a) general education courses required by the four-year college and (b) courses offered in the area of study will usually meet the Liberal Arts major requirement.

900 Apprenticeship - this code number should be used for all apprenticeship majors in any field. Do not use the code number of the specific trade area.
515 LIBERAL ARTS NON-TRANSFER (undecided or unlisted major)
201 Accounting
801 Aeronautics
102 Agribusiness

302 Architectural Drafting
520 Art
805 Automotive Mechanics
807 Body and Fender
808 Building Construction Technology

205 Business Administration
208 Business Data Processing
204 Business, General
809 Carpentry
203 Clerical

207 Court Reporting
814 Diesel Mechanics
816 Electrician
817 Electronics Technician
301 Engineering

883 Fire Science (Evening only)
560 Home Economics
561 Home Economics/Child Development
899 Industrial Arts Ed
823 Industrial Drafting

461 Inhalation Therapy
209 Insurance
535 Journalism
210 Legal Secretary
829 Machinist

211 Marketing
620 Mathematics
830 Mechanical Technology
212 Medical Assistant Secretary
224 Medical Receptionist (1 yr. non-degree course)

462 Medical Records Technology
213 Medical Secretary
831 Mill Cabinet Maker
580 Music
452 Nursing, RN-AA Degree Program

453 Nursing, Vocational-AS Degree Program
468 preNursing, Licensed Vocational
214 Office Administration
216 Office Machines
888 Police Science

217 Public Administration
542 Radio and Television Repairman
219 Real Estate
220 Receptionist (One yr. non-degree program)
430 Recreational Leadership

833 Reprographics
221 Secretarial Science
834 Sheet Metal Worker
741 Social Science
222 Stenography (One yr. non-degree course)

591 Teacher Aide
223 Technical Secretary
886 Transportation
837 Welding
457 X-Ray Technology

510 LIBERAL ARTS TRANSFER (undecided or unlisted major)
101 Agriculture, General
710 Anthropology
681 preArchitecture
631 Astronomy

610 Biological Science
611 Botany
632 Chemistry
770 Criminology
682 preDentistry

720 Economics
530 English-Literature
683 preForestry
552 French
612 Game Management

730 Geography
640 Geology-Earth Science
553 German
459 Health Education
740 History-Political Science

827 Industrial Technology
786 preLaw
620 Mathematics
455 Medical Laboratory Technology
684 preMedicine

451 preNursing, Registered
614 Oceanography
685 preOptometry
686 prePharmacy
570 Philosophy

420 Physical Education
630 Physical Science
633 Physics
750 Psychology
554 Russian

799 Social Welfare
760 Sociology
551 Spanish
543 Speech
590 preTeaching, Elementary or Secondary

787 preTheology
689 preVeterinary
613 Zoology
010 Evening Courses - Transfer
015 Evening Courses - Non-Transfer
999 Non-Credit Courses